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| APPLICATION NO.                                                                                                    | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/771,059                                                                                                         | 02/03/2004  | Gerald L. Larson     | D5014-B             | 1534             |
| 30410                                                                                                              | 7590        | 09/16/2004           | EXAMINER            |                  |
| INTERNATIONAL TRUCK INTELLECTUAL PROPERTY COMPANY,<br>4201 WINFIELD ROAD<br>P.O. BOX 1488<br>WARRENVILLE, IL 60555 |             |                      | TRIEU, THAI BA      |                  |
|                                                                                                                    |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                                                    |             |                      | 3748                |                  |

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/771,059

Applicant(s)

LARSON ET AL.

Examiner

Thai-Ba Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                    |                                                                             |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06/25/2004</u> .                                                          | 6) <input type="checkbox"/> Other: ____.                                    |

### DETAILED ACTION

Ten (10) sheets of the formal drawings filed on July 26, 2004 are acknowledged.

#### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters **"72"** (See Figure 6) and **"120"** (See Figures 2-3D) have both been used to designate **"check valve"**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character **"130"** has been used to designate both **"transmission controller"** and **"check valve"** (See Figure 4, Page 14, Paragraph [0038], lines 12-13; and Paragraph [0039], line 5). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

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appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **"21"** (See Figures 4-6); **"cam 36"** (See Figures 4-6); **"valve over-ride 43"** (See Figures 4-5); **"hydraulic valve control 43"** (See Figure 6); **"72"** (See Figure 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

**Specification**

1. The disclosure is objected to because of the following informalities:

- On Page 2, Paragraph [0006], line 2, "**compression ration**" should be replaced by – **compression ratio** – (for correcting typo error).

- On Page 6, Paragraph [0024], line 4, "**diesel 16**" should be replaced by – **diesel engine 16** – (for correcting the missing word).

- Applicants should replace "**valve 34**" (See Page 8, Paragraph [0029], lines 3-4; Page 11, Paragraph [0033], lines 5-6) by -- **shutter valve 34** – (See Page 7, Paragraph [0025], line 9; Page 8, Paragraph [0029], line 2; and Page 11, Paragraph [0033], line 1) (for the consistency of the whole specification).

- On Page 10, Paragraph [0031], lines 11-12, "**brake pedal position 58**" should be replaced by – **brake pedal position 52** – (for correcting typo error).

- On Page 10, Paragraph [0032], line 9, "**piston 312**" should be replaced by – **piston 304** – (for correcting typo error).

- On Page 11, Paragraph [0033], line 5, "**valve 34**" should be replaced by – **valve 110** –; and line 6, "**valves 32 and 34**" should be replaced by – **valves 110 and 34** -- (for correcting typo error).

- On Page 14, Paragraph [0039], line 4, "**tank 77**" should be replaced by – **tank 70** – (for correcting typo error).

Appropriate correction is required.

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2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Specifically,

- In claim 1, line 10, the recitation of **"pressurized air utilization means"**; in claim 6, lines 4 and 7, the recitations of **"means responsive to a negative load"** and **"means responsive to a non-negative load"**; in claim 7, line 3, the recitations of **"means responsive to a request for torque"** lack antecedent basis in the specification.

- In claim 10, line 3, the recitation of **"an auxiliary controller"** lacks antecedent basis in the specification.

- In claim 15, line 17, the recitation of **"a vehicle management system"** lacks antecedent basis in the specification.

### ***Claim Objections***

Claims 3-5 are objected to because of the following informalities:

- In claims 3-5, line 1, **"the means"** should be replaced by -- **the pressurized air utilization means** -- (for consistency of claims).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. Claims **1-8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, in claim 1, line 10, the recitation of ***"pressurized air utilization means"***; in claim 6, lines 4 and 7, the recitations of ***"means responsive to a negative load"*** and ***"means responsive to a non-negative load"***; in claim 7, line 3, ***"means responsive to a request for torque"*** render the claims indefinite, since applicants use different means, which are not identified in the specification such as which means is to be considered as pressurized air utilization; which means is referenced to respond to a negative load or to non-negative load; which means is use to respond to a torque request. Applicants are required to identify each means and disclose the language of theses recitation to be incorporated with the specification.

2. Claim **9** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, line 3, the recitation of ***"one or more can be operated as non-firing air pump stages"*** renders the claim indefinite, since it is not clear that under which condition one cylinder or many cylinders can be operated as non-firing air pump stages, and under which condition one cylinder or many cylinders cannot be operated as non-firing air pump stages. Applicants are required to identify theses conditions.

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Additionally, in lines 6-7, the recitation of ***"at least one cylinder which can be diverted to operation as an air pump stage"*** renders the claim indefinite, since it is not clear that under which condition at least one cylinder can be diverted to operation as an air pump stage, and under which condition at least one cylinder cannot be diverted to operation as an air pump stage. Applicants are required to identify these conditions.

3. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, in line 3, the recitation of "an auxiliary controller" renders the claim indefinite, since it is not clear that which controller is to be referenced to an auxiliary controller such as a transmission controller, anti-lock brake controller, a gauge controller etc... Applicants are required to identify which one is to be an auxiliary controller.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as best understood as being anticipated by Chang (Patent Number 4,798,053).***

Regarding claim 1, Chang discloses a motor vehicle comprising:



an air storage tank (26) mounted on the motor vehicle;

a drive train including a transmission (42) and an internal combustion engine having a plurality of cylinders (Not Numbered), an exhaust pipe from each cylinder and a crank shaft (12) for turning the a transmission (42) (See Figures 1-2);

a multi-stage compressor including at least a first cylinder (Not Numbered) of the internal combustion engine (10) as a low pressure compression stage and an outlet (16, 18) connected to supply high pressure air to the air storage tank (26) (See Figures 1-2);

a controllable discharge valve (74) from the air storage tank (26); and

pressurized air utilization means (76, 78) connected to the controllable discharge valve (72) and responsive to compressed air for boosting output of the drive train (42) (See Figures 1-2).

**Regarding claim 15**, Chang discloses a kinetic energy recovery system for a vehicle, comprising:

an internal combustion engine (10) having a plurality of combustion cylinders (Not Numbered) and exhaust ports (the well-known component of an internal combustion engine) from the combustion cylinders (See Figures 1-2);

a vehicle drive train (42) connected to the internal combustion engine as its prime mover;

a multi-stage air compression system (Cylinders of the internal combustion engine and air tank 26, air motor (78), air motor clutch (76)) (See Figures 1-2);

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one or more cylinders of the internal combustion engine being available as primary stages in the multi-stage air compression system (See Figures 1-2);

a high pressure stage for each low pressure stage in the multi-stage compression system (See Figures 1-2);

compressed air storage (26) coupled to receive air from the high pressure stage (in the exhaust manifold 16, 18);

a compressed air operated drive train booster (76,78) coupled by a pressure regulating valve (74) to the compressed air storage;

a controller area network (microprocessor) (See Column 7, lines 8-22);

sensors distributed about the vehicle providing vehicle information for distribution on the controller area network (See Column 7, lines 8-22); and

a vehicle management system coupled to receive information on the controller area network and responsive thereto for coordinating operation of the multi-stage air compression system, the compressed air storage and the drive train booster (See Figures 1-2, and Column 7, lines 8-22).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (Patent Number 4,798,053), in view of Chae (Pub. Number KR 200248252 A).***

Chang discloses the invention as recited above, and further discloses an engine controller (See Figure 3); however, Chang fails to disclose a body controller.

Chae teaches that it is conventional in the Device for controlling pressure of the reservoir tank of the vehicle air brake art, to utilize a body controller (34) (See Figure and Abstract).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a body controller, as taught by Chae, to improve the braking power, in the Chang device.

#### ***Allowable Subject Matter***

Claims **2-8** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims **9-14** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

#### ***Conclusion***

The IDS (PTO-1449) filed on June 25, 2004 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kuriyama et al. (US Patent Number 5,505,675) disclose a hydraulic control system of automatic transmission.
- Dinkloh et al. (US Patent Number 3,823,792) disclose a vehicle with step-less drive and auxiliary braking force.
- Eggmann (US Patent Number 3,986,575) discloses a hybrid motor unit with energy storage.
- Sekiyama et al. (Patent Number 4,882,906) disclose an engine braking system.
- Iizuka (US Patent Number 5,830,105) discloses an auxiliary brake apparatus.
- Zaleski (US Patent Number 6,568,186 B2) discloses hybrid expandable chamber engine with internal combustion and pneumatic modes.
- Lawson, Jr. (US Patent Number 5,819,538) discloses a turbocharged engine system with recirculation and supplemental air supply.
- Reis (US Patent Number 5,549,174) discloses a recovery system for dissipated energy of an engine motor vehicle during its running conditions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone


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number for the organization where this application or proceeding is assigned is 703-872-9306.

However, the examiner's new telephone number (751) 272-4867 will become effective after the expected changeover date of November 22, 2004.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB  
September 14, 2004

  
Thai-Ba Trieu  
Patent Examiner  
Art Unit 3748